United Nations A/CN.4/533

General Assembly

Distr.: General
30 April 2003

Original: English

International Law Commission
Fifty-fifth session
Geneva, 5 May-6 June and 7 July-8 August 2003

Shared natural resources: first report on outlines

By Mr. Chusei Yamada, Special Rapporteur

I. Introduction

1. This first report is a very preliminary one, dealing with the outlines of the topic "Shared natural resources". It consists of the present introduction, the background on how the current topic of "shared natural resources" has been formulated and a review of the problems that should be addressed concerning "confined transboundary groundwaters". The Special Rapporteur intends to produce addenda to the present report.

2. The General Assembly, at its fifty-fourth session in 1999, encouraged the International Law Commission to proceed with the selection of new topics for its next quinquennium corresponding to the wishes and preoccupations of States and to present possible outlines for new topics and information related thereto in order to facilitate decision thereon by the Assembly.[1] The Commission, at its fifty-second session in 2000, considered its long-term programme of work and after careful examination of the preliminary studies on the various subjects agreed that the following topics were appropriate for inclusion in the long-term programme of work.[2]

1. Responsibility of international organizations.
2. Effects of armed conflict on treaties.
3. Shared natural resources of States.
4. Expulsion of aliens.
5. Risks ensuing from fragmentation of international law.

[1] General Assembly resolution 54/111, para. 8.
[2] *Official Records of the General Assembly, Fifty-fifth Session, Supplement No. 10* (A/55/10), para. 729.

03-34192 (E) 070503

3. At its fifty-fifth session in 2000, the General Assembly only took note of the report of the Commission with regard to its long-term programme of work and the syllabuses on new topics.[3] Subsequently, the Commission, at its fifty-third session in 2001, decided, in order to use the available time more efficiently, to give priority during the first week of the first part of its fifty-fourth session to the appointment of two Special Rapporteurs on two of the five topics included in its long-term programme of work.[4] During the debate in the Sixth Committee of the General Assembly at its fifty-sixth session in 2001, delegations saw particular merit in the proposed five new topics in view of the potential need for clarification of the law in areas in which practical problems might arise. Many delegations were of the view that the topic "Responsibility of international organizations" was ripe for codification and that the Commission should give priority to it from among the five recommended topics. Some delegations also expressed support for consideration of the topic "Shared natural resources".[5] The General Assembly thereupon requested the Commission to begin its work on the topic "Responsibility of international organizations" and to give further consideration to the remaining topics to be included in its long-term programme of work, having due regard to comments made by Governments.[6]

4. At the first part of its fifty-fourth session in 2002, the Commission decided on the inclusion in the programme of work of the Commission of the item entitled "Shared natural resources", the appointment of a Special Rapporteur on the item and the establishment of a working group to assist the Special Rapporteur.[7] During the second part of the session, the Special Rapporteur prepared a discussion paper for consideration in informal consultations,[8] in which he described the background underlying the proposal of the topic in the Planning Group of the Commission and indicated his intention to deal with confined transboundary groundwaters, oil and natural gas under the topic. While the Special Rapporteur recognized that a single mineral deposit may exist under the jurisdiction of more than two States, that many marine living resources are also shared resources and that animals on land and birds may also migrate across borders, he was of the view that it was not appropriate to deal with these resources under the present topic as they had characteristics that were far too different from those of groundwaters, oil and gas, and could be and in fact were dealt with more appropriately elsewhere. He also proposed to adopt a step-by-step approach, to the study of the topic, first taking up groundwaters. He then proposed the following work programme in the current quinquennium:

2003	First report on outlines
2004	Second report on confined groundwaters
2005	Third report on oil and gas
2006	Fourth report on comprehensive review

[3] General Assembly resolution 55/152, para. 8.

[4] *Official Records of the General Assembly, Fifty-sixth Session, Supplement No. 10* and corrigendum (A/56/10 and Corr.1), para. 259.

[5] A/CN.4/521, para. 122.

[6] General Assembly resolution 56/82, para. 8.

[7] *Official Records of the General Assembly, Fifty-seventh Session, Supplement No. 10* and corrigendum (A/57/10 and Corr.1), para. 518.

[8] ILC (LIV)/IC/SNR/WP.1.

Members of the Commission offered various valuable suggestions and were generally supportive of the approach suggested by the Special Rapporteur.

5. During the debate in the Sixth Committee of the General Assembly at its fifty-seventh session in 2002, very few delegations commented on the topic of "Shared natural resources". Those delegations that did so generally supported the study of the topic. A concern was expressed with regard to the appropriateness of the title of the topic. According to another view, the topic should be limited to the issue of groundwater as a complement to the past work of the Commission on transboundary waters. Other areas of transboundary resources were not ripe for consideration. Apart from the area of transboundary watercourses, real conflicts rarely arose between States, and when they did, practical accommodations suitable to the specific situation had been reached. According to this view, an effort to extrapolate customary international law from that divergent practice would not be a productive exercise.[9] The General Assembly at its fifty-seventh session only took note of the decision of the Commission to include in its programme of work the topic "Shared natural resources".[10] In view of the very limited responses from States so far, the Special Rapporteur intends to proceed along the line suggested in paragraph 4 above at least for the time being, although the study on groundwaters might require much longer time as envisaged there.

II. Background of the topic

6. The first time that the Commission dealt with the problem of shared natural resources was when it deliberated on the law of the non-navigational uses of international watercourses. A brief review of its codification would be useful for our work. The legal regime of international rivers was first taken up in the Congress of Vienna in 1815 where the principle of free navigation on the international rivers in Europe was proclaimed. The Danube was of special importance in the development of the European law on international rivers. The European Danube Commission established by the Peace Treaty of Paris of 1856 regulated through international cooperation the navigation on the Danube and set the examples for other river commissions to follow. The development of international law on rivers was at first almost totally concerned with the rights of free navigation.

7. It later became necessary to deal also with such other uses of international rivers as for the production of energy, irrigation, industrial processes, transportation other than navigation (logging), and recreation. In most major river systems, downstream States utilize waters to the full extent. New uses of waters by upstream States are bound to affect in some way the historically acquired interest of the downstream States. Such uses of waters also pose environmental concerns by their attendant risks of pollution. There exists a fundamental difference between the navigational regime and the non-navigational use regime. The aim of the navigational regime is to provide the concerted administrative measures to guarantee free navigation on the river system. The non-navigational use regime must focus on providing an equitable balance of interests to the States concerned and to safeguard against adverse effects on the environment.

[9] A/CN.4/529, para. 236.

[10] General Assembly resolution 57/21, para. 2.

8. The General Assembly in 1970 recommended that the Commission should take up the study of the law on the non-navigational uses of international watercourses with a view to its progressive development and codification.[11] The work in the Commission began in 1971 and continued until 1994 with five successive Special Rapporteurs, Messrs Richard D. Kearney, Stephen M. Schwebel, Jens Evensen, Stephen C. McCaffrey and Robert Rosenstock. From the outset of the work, the Commission received ample input from States: almost half of the watercourses States made their positions known to the Commission. The draft articles prepared by the Commission on its first reading in 1991 received hardly any criticism. The final draft articles, incorporating only minor changes to the 1991 draft, were formulated and presented to the General Assembly in 1994 by the Commission. The General Assembly thereupon decided to set aside two years for reflection by States and to convene a Working Group of the Whole of the Sixth Committee in 1996 to elaborate a framework convention on the law of the non-navigational uses of international watercourses on the basis of the draft articles formulated by the Commission.

9. The Working Group of the Whole of the Sixth Committee was convened in 1996 and 1997 and succeeded in the elaboration of the Convention on 4 April 1997. Upon the recommendation of the Working Group, the General Assembly adopted the Convention on the Law of the Non-Navigational Uses of International Watercourses on 21 May 1997 by a vote of 104 to 3, with 26 abstentions. The Convention has not yet received the 35 ratifications required for it to enter into force.

10. The main feature of the Convention is that it was conceived as a framework convention which would provide residual rules. The general principles it embodies are equitable and reasonable utilization and participation by States in the uses of international water resources on the one hand, and the obligation of States, in utilizing international watercourses in their territories, to take all appropriate measures not to cause significant harm to other watercourse States, on the other. These principles are to be put into effect through cooperation among the watercourse States concerned, in particular through the system of notification of planned measures. Before a watercourse State implements or permits the implementation of planned measures that may have a significant adverse effect upon other watercourse States, it should provide those States with timely notification thereof. The exchange of relevant information, consultations and negotiations is required. The protection and preservation of the ecosystems of international watercourses and the prevention, reduction and management of the pollution of international watercourse are also stipulated. It is noteworthy that the settlement of disputes includes compulsory reference to an impartial fact-finding co mission, although its findings are not binding upon the States concerned.

11. There were three major issues of contention during the negotiations in the Working Group of the Sixth Committee. The first involved the nature of the framework convention and its relationship to watercourse agreements for specific rivers. The downstream States insisted on the priority of the special agreements over the framework convention, while the underdeveloped upstream States wanted the principles in the framework convention to prevail. These are two practical considerations to be kept in mind. In any event, the consent of all watercourses States is required. And in reality, the principles enunciated in the framework convention would certainly affect the special watercourse agreement. The second

[11] General Assembly resolution 2669 (XXV).

issue was the balance between the principle of equitable and reasonable utilization and participation (article 5) and that of the obligation not to cause significant transboundary harm (article 7). This was indeed the core of the contention. The upstream States contended that unless this principle of utilization was given precedence over the no harm principle, they would not be able to execute development projects. On the other hand, the downstream States upheld the maxim *sic utere tuo ut alienum non laedas* (one should use his own property in such a manner as not to injure that of another). This point of contention was finally resolved by the package of linking the two principles by the words "having due regard for" in article 7, paragraph 2. This rather weak linkage might seem to favour the upstream States. Nevertheless, the upstream States must abide by the stringent regulations for new development projects as stipulated in Part Three of the Convention, and the total balance is achieved. The third issue related to dispute settlement, in particular whether it was necessary to have a compulsory fact-finding regime. This was solved through the tacit understanding that States might enter reservations if they could not accept compulsory referral to a fact-finding commission. All the above issues and solutions achieved thereto would be very relevant when the legal regime of any other shared natural resources is to be considered.

12. During the consideration of the law of the non-navigational uses of international watercourses in the Commission, the question of groundwater was raised in the context of the scope of the Convention. Special Rapporteur Stephen C. McCaffrey presented a detailed study on the subject.[12] In his analysis of the components of a watercourse to be included in the definition of "international watercourse", he emphasized two aspects of groundwater. One was its quantity: the most astonishing feature of groundwater is its sheer quantity in relation to surface water. Groundwater constitutes approximately 97 per cent of the fresh water on earth, excluding polar ice caps and glaciers. The other aspect was its use: groundwater is heavily relied upon to satisfy basic human needs, particularly in the developing world. To McCaffrey, the fundamental characteristic of groundwater seemed to be that while its flow is slow in comparison with that of surface water, it is constantly in motion, and while it may in exceptional cases exist in areas where there is virtually no surface water, it is normally closely associated with rivers and lakes. These two features of groundwater — its mobile nature and its interrelationship with surface water — indicate that the actions of one watercourse State involving its groundwater may affect the groundwater or surface water in another watercourse State. Thus, in his view, groundwater needed to be included in the scope of the Convention. The Commission debated his proposal and finally agreed to include in the draft Convention groundwater related to surface water. The draft article adopted by the Commission on first reading defined "watercourse" as "a system of surface and underground waters constituting by virtue of their physical relationship a unitary whole and flowing into a common terminus" (article 2, subparagraph (b)). The rationale for including groundwater was that because the surface and underground waters formed a system of a unitary whole, human intervention at one point in such a system might have effects elsewhere within the same system. It follows from the unity of the system that the term "watercourse" so defined in the draft articles does not include "confined" groundwater, which is unrelated to any surface water. It was suggested that confined groundwater could be

[12] Seventh report, *Yearbook ... 1991*, vol. II (Part One), document A/CN.4/436, paras. 8-58.

the subject of a separate study by the Commission with a view to the preparation of draft articles.

13. Robert Rosenstock, who succeeded Stephen C. McCaffrey as Special Rapporteur in 1992, reopened the issue of groundwater. In introducing his first report[13] in 1993, he was inclined to include "unrelated confined groundwaters" in the topic. If the Commission was receptive to that idea, he would then prepare relevant changes in the draft articles. Mr. Rosenstock presented his study on "unrelated" confined groundwaters as an annex to his second report[14] in 1994. He contended that his study had demonstrated the wisdom of including unrelated confined groundwaters in the draft articles and noted that the recent trend in the management of water resources had been to adopt an integrated approach. Inclusion of "unrelated" confined groundwaters was the bare minimum in the overall scheme of the management of all water resources in an integrated manner. He was convinced that the principles and norms applicable to surface water and related groundwaters were equally applicable to unrelated confined groundwaters. In his view the changes required in the draft to achieve this wider scope were relatively few and uncomplicated and he prepared such changes as required to the draft articles. Extensive substantive discussions on his proposal took place in the Commission in 1993 and 1994.[15] While some members agreed with Mr. Rosenstock's proposal to include unrelated confined groundwaters in the scope, many members had reservations. They did not see how "unrelated" groundwaters could be envisaged as part of a system of water that constituted a unitary whole. In their view, the use of confined groundwaters was relatively new and little was known about such resources. However, they agreed that, in view of the fact that groundwater was of great importance in some parts of the world and that the law relating to confined groundwater was more akin to that governing the exploitation of natural resources, especially oil and gas, the separate treatment was warranted.

14. In the end the Commission decided not to include unrelated confined groundwaters in the draft Convention and adopted draft article 2 as formulated on first reading with minor reduction. In 1997, the General Assembly adopted article 2 without substantial change to the draft of the Commission. The final text is:

> **"Article 2**
> **"Use of terms**
>
> "For the purpose of the present Convention:
>
> (a) 'Watercourse' means a system of surface waters and groundwaters constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus;
>
> (b) 'International watercourse' means a watercourse, parts of which are situated in different States;
>
> ..."

[13] First report, *Yearbook ... 1993*, vol. II (Part One), document A/CN.4/451.

[14] Second report, *Yearbook ... 1994*, vol. II (Part One), document A/CN.4/462.

[15] See *Yearbook ... 1993*, vol. I, summary records of the 2309th, 2111th-2316th and 2322nd meetings; and *Yearbook ... 1994*, vol. I, summary records of the 2334th-2339th, 2353rd-2354th and 2356th meetings.

15. At the same time, the Commission adopted and submitted the following resolution to the General Assembly commending States to be guided by the principles contained in the draft articles on the law of the non-navigational uses of international watercourses, where appropriate, in regulating transboundary groundwater:[16]

"*The International Law Commission*,

"*Having completed* its consideration of the topic 'The law of the non-navigational uses of international watercourses',

"*Having considered* in that context groundwater which is related to an international watercourses,

"*Recognizing* that confined groundwater, that is groundwater not related to an international watercourse, is also a natural resource of vital importance for sustaining life, health and the integrity of ecosystems,

"*Recognizing also* the need for continuing efforts to elaborate rules pertaining to confined transboundary groundwater,

"*Considering* its view that the principles contained in its draft articles on the law of the non-navigational uses of international watercourses may be applied to transboundary confined groundwater,

"1. *Commends* States to be guided by the principles contained in the draft articles on the law of the non-navigational uses of international watercourses, where appropriate, in regulating transboundary groundwater;

"2. *Recommends* States to consider entering into agreements with other State or States in which the confined transboundary groundwater is located;

"3. *Recommends also* that, in the event of any dispute involving transboundary confined groundwater, the States concerned should consider resolving such dispute in accordance with the provisions contained in article 33 of the draft articles, or in such other manner as may be agreed upon."

16. The General Assembly did not take any action on the recommendation of the Commission on confined transboundary groundwater.

17. When the Commission selected "shared natural resources" as one of the new topics in 2000 for the coming quinquennium, it did so on the basis of the syllabus prepared by Robert Rosenstock.[17] Mr. Rosenstock suggested that the Commission could usefully undertake the topic focused exclusively on water, particularly confined groundwaters, and such other single geological structures as oil and gas. The effort should be limited to natural resources within the jurisdiction of two or more States. The environment in general and the global commons raised many of the same issues but a host of others as well.

18. It is against this background that the Special Rapporteur proposes to take up confined groundwaters, oil and gas under the current topic and to begin first with confined groundwaters. It is furthermore noted that the current work of the

[16] See *Official Records of the General Assembly, Forty-ninth Session, Supplement No. 10* (A/49/10), chap. III.D.

[17] *Official Records of the General Assembly, Fifty-fifth Session, Supplement No. 10* (A/55/10), annex, sect. 3.

Commission on the topic of "international liability for injurious consequences arising out of acts not prohibited by international law" is also of relevance to the work on "shared natural resources". Although it does not address the use of resources as such, it deals with the activities within the jurisdiction of a State which could have transboundary effects in other States.

III. Confined transboundary groundwaters

19. It follows from the discussion above that the scope of "groundwater" which we are supposed to address covers water bodies that are shared by more than two States but are not covered by article 2 (a) of the Convention on the Law of the Non-navigational Uses of International Watercourses. Various terms are in use to refer to such water body: "unrelated confined groundwaters", "confined groundwaters", "confined transboundary groundwaters", "internationally shared aquifer", and others. The term applies to a body of water which is an independent body that does not contribute water to a common terminus via a river system or receive a significant amount of water from any extant surface water body. It is necessary to formulate a precise definition of such a water body on the basis of a correct understanding of its hydrogeological characteristics. Until we can reach a decision on the definition, the Special Rapporteur intends to use the term "confined transboundary groundwaters" for purposes of convenience.

20. It was perhaps a wise decision by the Commission to conduct a separate study on "confined transboundary groundwaters". It is obvious that almost all the principles embodied in the Convention on the Law of the Non-navigational Uses of International Watercourses are also applicable to confined transboundary groundwaters. However, there exist distinct differences between these two water bodies. To cite an example, while surface water resources are renewable, groundwater resources are not. This means that when groundwater is extracted, it will be quickly depleted, as recharge will take years. When groundwater is contaminated, it will remain so for many years. In the case of surface water, the activities to be regulated are those involving the uses of such resources. In the case of groundwater, we may also have to regulate activities other than the uses of the resources that might adversely affect the condition and quality of groundwater. Additional principles need to be considered to address these unique problems.

21. Although water is the most widely occurring substance on earth and 70 per cent of the earth's surface is covered by water, merely 2.53 per cent of it is freshwater. Still further, two thirds of this freshwater is locked up in ice in the polar districts and in glaciers.[18] The portion of freshwater available for human consumption is therefore only 1 per cent. Per capita usage is increasing, with enhanced lifestyles and the rapid growth of the world population. As a consequence, freshwater is becoming scarce. Moreover, freshwater resources are being increasingly polluted due to human activities. Fifty per cent of the population in developing countries is currently exposed to unsafe water resources; 6,000 infants in the developing world die every day as a result of dirty, contaminated water — the equivalent of 20 jumbo passenger jet crashes daily; or of the entire population of

[18] *The World Water Development Report: Water for People, Water for Life* (United Nations publication, Sales No. E.03.II.A.2), executive summary, p. 8.

central Paris being wiped out annually.[19] We are headed for a world water crisis. This is the challenge that the World Water Forum is designed to cope with through international cooperation.[20]

22. In contrast to surface water, human knowledge of underground water resources is still limited despite their massive volume and their high and pure quality. One estimate puts the total amount of groundwater resources at 23,400,000 cubic km, compared with 42,800 cubic km in rivers.[21] The science of the hydrogeology of groundwater is rapidly developing, but it seems to be treating groundwater as a whole rather than distinguishing between groundwater related to surface water and that unrelated to it. Management of confined transboundary groundwaters is still in its infancy and there is a clear need for initiating international cooperation for that purpose. Under the auspices of the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the International Association of Hydrogeologists (IAH) in cooperation with the Food and Agriculture Organization of the United Nations (FAO) and the Economic Commission for Europe, a programme proposal for an international initiative on Internationally Shared Aquifer Resources Management (ISARM) was prepared. The objective of the programme is to support cooperation among States to develop their scientific knowledge and to eliminate potential for conflict. It will provide training, education and information and provide inputs for policies and decision-making, based on good technical and scientific understanding.[22]

23. Alice Aureli of the UNESCO International Hydrological Programme, who is in charge of ISARM, has kindly offered assistance to the Special Rapporteur. On the occasion of the third World Water Forum, a "Groundwater Theme" was held in Osaka from 18 to 22 March 2003, at which Dr. Aureli organized a meeting between the support group,[23] consisting of representatives from UNESCO, FAO and IAH, and the Special Rapporteur. The support group suggested the formation of a group of experts to advise the Special Rapporteur and is ready to provide services for those experts. Approximately 20 experts[24] will be selected in the areas of legal affairs and hydrogeology on the basis of experience and representation of different regions. The Special Rapporteur is indeed grateful to the valuable assistance being offered.

---

[19] Newsletter of the United Nations University, issued for the third World Water Forum, held in Kyoto, Osaka and Shiga, Japan, from 16 to 23 March 2003.

[20] The third World Water Forum was held in Kyoto, Osaka and Shiga, Japan, from 16 to 23 March 2003.

[21] *World Water Development Report*, supra note 18, executive summary, p. 25.

[22] UNESCO, Internationally Shared (Transboundary) Aquifer Resource Management, 2001, para. 1.1.

[23] The support group consists of Alice Aureli and Annukka Lipponen (both hydrogeologists) of UNESCO, Kerstin Mechlem (Legal Officer) and J. Burke (Senior Water Policy Officer) of FAO and Shammy Puri of IAH.

[24] Tentative list of experts: Alice Aureli, Annukka Lipponen and Bo Appelgren of UNESCO; Shammy Puri, H. Wong and M. Lenzi of IAH; S. Burchi, K. Mechlem and J. Burke of FAO. Hydrogeologists: M. Bakhbahki, Y. Xu, M. A. Habermehl, F. Sefe. Legal Experts: Stephen C. McCaffrey, L. del Castillo de Laborde Parera, M. Nanni, S. U. Upadhyay and J. Ntambirweki.

24. In order to formulate rules regulating confined transboundary groundwaters, we must have an inventory of these resources worldwide and a breakdown of the different regional characteristics of the resources. National, regional and international organizations are currently studying and assessing such major aquifer systems as the Guarani aquifer (South America), the Nubian Sandstone aquifers (northern Africa), the Karoo aquifers (southern Africa), the Vechte aquifer (Western Europe), the Slovak Karst-Aggtelek aquifer (Central Europe) and the Praded aquifer (Central Europe). The Guarani aquifer, shared by Argentina, Brazil, Paraguay and Uruguay, has a storage volume of 40,000 cubic km, enough water to supply a population of 5.5 billion people for 200 years at a rate of 100 litres per day per person.[25] Dider Opertti Badan has provided the Special Rapporteur with the text of the Memorandum of Understanding between the Government of Uruguay and the General Secretariat of the Organization of American States for the execution of the project "Environmental Protection and Sustainable Development of the System 'Acuifero Guarani'". The Special Rapporteur is indeed grateful for this contribution, which will certainly advance his understanding of the problem.

25. In addition to the necessary studies as described in paragraph 24 above, the following aspects must also be studied:

(a) Socio-economic importance: groundwater is becoming increasingly important for all populations, but particularly for the populations of the developing world. The development aspects of groundwater are being extensively studied by the World Bank Groundwater Management Advisory Team;

(b) The practice of States with respect to use and management;

(c) Contamination: causes and activities which adversely affect the resources as well as its prevention and remedial measures;

(d) Cases of conflicts;

(e) Legal aspects: existing domestic legislation and international agreements for management of the resources;

(f) Bibliography of materials of direct relevance to the work of the Commission.

---

[25] Groundwater briefing, "Managing transboundary groundwater resources for human security", presented by UNESCO and IAH at the third World Water Forum, Kyoto, Japan, 16-23 March 2003. See also www.iah.org/briefings/Trans/trans.htm.